



KDHE—GEOLOGY SECTION CALENDAR YEAR 2011 ANNUAL REPORT

Geology Section Chief, Mike Cochran, L.G.

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The Geology Section within the Kansas Department of Health and Environment (KDHE), Bureau of Water administers the Underground Injection Control (UIC), the Underground Hydrocarbon Storage and Associated Brine Storage Ponds (UHS), and Water Well Licensing, Water Well Construction and Abandonment programs.

The overall objective of these programs is to protect the public health and safety and the waters and soils of the state by preventing releases from injection wells, hydrocarbon storage wells and brine storage ponds and by preventing contamination from improperly constructed or abandoned water wells. The activities listed herein support this objective.

On the following pages you will learn more about the significant activities of the programs administered by the Geology Section. In addition, the Geology Section performs outreach, distribution of information, hydrogeologic support activities and supports other federal, state and local agencies. We have also listed some important facts for the programs administered by the Geology Section as well as significant accomplishments. The Geology Section continually strives to enhance the effectiveness of these programs. If you have questions or comments, please let us know.

Michael H. Cochran, Chief of Geology

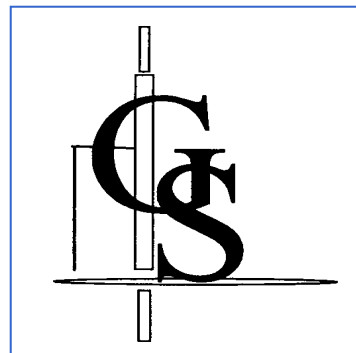
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<http://kdheks.gov/geo>

Underground Injection Control

Information for Calendar Year 2011

The UIC Program regulates injection well activities including the disposal of industrial wastes into deep geologic formations, the solution mining of salt formations, and the shallow injection of non-hazardous fluids below the land surface.



Flow Line to a Class I Injection Well

A Few Program Statistics:

- 47 Active Class I industrial waste disposal wells
- 150 Active Class III salt solution mining wells
- 6,241 Active Class V (shallow) injection wells in the KDHE inventory
- 3 Billion gallons of wastefluids safely injected into Class I wells
- 1.5 Billion gallons of brine safely produced from Class III wells

UIC Staff:

Cynthia Khan, Kansas Licensed Geologist
ckhan@kdheks.gov

Unit Chief, Cynthia Khan, L.G.

Some significant activity numbers:

- 130 Inspections conducted
- 48 Mechanical integrity tests witnessed
- 174 Class V aquifer remediation well/geoprobe authorization requests reviewed
- 27 Permit applications reviewed
- 57 Permits placed on public notice and issued
- 119 Wireline well logs of various types reviewed
- 697 Monitoring records reviewed
- 138 Well test plans reviewed
- 71 Mechanical integrity test reports reviewed



Class III Injection Well

Underground Hydrocarbon Storage

Information for Calendar Year 2011

The Underground Hydrocarbon and Natural Gas Storage Program regulates the storage of hydrocarbons, including liquefied petroleum gas (LPG) and natural gas, in salt caverns formed by solutioning in the Hutchinson Salt. The program also regulates the brine ponds associated with the underground storage facilities.

Unit Chief, Mark Jennings, L.G.

Some significant activity numbers:

- 4 Facility audits conducted
- 350 Storage wells inspected
- 71 Brine ponds inspected
 - ◆ 5 New storage wells drilled
- Plans and Reports Received/Reviewed:
 - ◆ 114 MIT plans
 - ◆ 95 Final MIT reports
 - ◆ 86 Workover plans
 - ◆ 302 Final workover reports
 - ◆ 37 Groundwater monitoring reports
 - ◆ 172 Brine pond monitoring reports
 - ◆ 142 Wireline logs reviewed
 - ◆ 21 Sonar surveys reviewed
 - ◆ 1 Brine pond relined with double liner
 - ◆ 1 Well plugged & abandoned

Brine Line Upgrades at UHS Facility



Relining a Brine Pond at a UHS Facility

A few program statistics:

- 9 LPG facilities
- 373 Active LPG wells
- 130 LPG wells in monitoring status
- 44 Active brine storage ponds
- 384 Groundwater monitoring wells
- 1 Natural gas facility (inactive)
- 98 Natural gas wells (all in monitoring status)
- 73.0+ Million Barrels of LPG storage capacity

UHS Staff:

Mark Jennings, Kansas Licensed Geologist
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Jeffrey Hand, Environmental Technician
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Water Well

Information for Calendar Year 2011

The Water Well Program licenses water well contractors and regulates water well construction, plugging and abandonment.



Concrete and Debris Removal from Hand Dug Well

Unit Chief, Richard Harper, L.G.

Some significant activity numbers:

- 161 Waiver requests for 1,112 wells reviewed
- 218 Contractor licenses reissued
- 10 New contractor's licenses issued
- 403 Drilling rig licenses issued
- 6,484 Water well record forms (WWC-5) reviewed for compliance
- 4 Complaints investigated

A few program statistics:

- 4,424 Water wells constructed
 - ◆ 2,329 were domestic
 - ◆ 1,120 were monitoring
 - ◆ 975 other
- 2,010 Water wells plugged
- 228 Licensed water well contractors
- 202 Oil drill rig water supply wells
- 220 Geothermal heat exchange systems installed

Water Well Staff:

Richard Harper, Kansas Licensed Geologist
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Hand Dug Well Plugging—Load of Chat Sized Gravel being put into Well



Administrative Assistants

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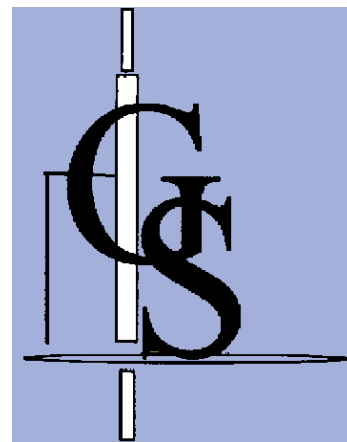
The Administrative Assistants provides both support to the Geology Section professional staff and customer service to the public and entities outside the Section.

Support for special projects including:

- KOLAR—Kansas Online Automated Reporting System for water well record form WWC-5 (in conjunction with Kansas Geological Survey)
 - Announcement, registration and instructions put on Web site
 - Announcement mailed out
- Potential Abandoned Wells notifications (in conjunction with Division of Water Resources)
 - 1, 253 Letters processed
- WWC-5 Water Well Record Forms
 - 6,484 Forms processed
- KDHE Safety Committee
- UIC database
- Geology Section Annual Seminar
- Water Well Contractor Licensing
 - 235 Renewal letters processed
 - 1,155 Licenses (contractor & rig) processed
- Forms Development
- Provide Kansas Geological Survey logs for scanning into database.
- Conversion of all WordPerfect documents to Word documents

Customer service:

- Web site development and updates—on going; including fillable pdf forms, maps, directions, notices, procedure and guidance documents etc.
- 4 File reviews/copying documents
- Cross training to acquire more knowledge of section programs to provide better service to customers
- E-mail notifications regarding Geology Section Events and Program Changes



Administrative Staff:

Deb Biester, Sr. Administrative Assistant
dbiester@kdheks.gov
Julie Falk, Administrative Assistant
jfalk@kdheks.gov

GEOLOGY SECTION

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ENFORCEMENT ACTIONS

The Geology Section works vigorously with operators to achieve compliance with state and federal environmental statutes and regulations. The regulatory programs rely upon inspections and monitoring to determine compliance. Operators usually correct compliance problems quickly and effectively; however, there are some instances in which KDHE must issue administrative orders or monetary penalties to obtain compliance.

UNDERGROUND INJECTION CONTROL PROGRAM

Two Class I industrial waste disposal wells and two Class V wells had significant violations. Violations ranged from annulus pressure below the minimum required for a Class I well, failure to take required samples for a Class I well, loss of mechanical integrity for a Class I well, directing industrial waste to a Class V septic system. All violations were satisfactorily resolved and did not require the issuance of an order to obtain compliance.

UNDERGROUND HYDROCARBON STORAGE PROGRAM

One facility failed to submit a mechanical integrity test plan prior to conducting the test. This violation was satisfactorily resolved and did not require the issuance of an order to obtain compliance.

In 2011 there were a total of 41 brine spills reported to KDHE. This resulted in approximately 705 barrels of brine (30,000 gallons) being released to the environment. The majority of the spills resulted from line leaks. KDHE is working with the storage industry to reduce the number of spills. The industry continues to promptly cleanup spills to minimize the impact to the environment. In order to prevent spills, the industry has replaced or plastic lined a number of brine lines and this activity continues.

WATER WELL PROGRAM

Fifteen water well contractor licenses were revoked for failure to complete the requirements for license renewal.

GEOLOGY SECTION

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PROGRAM FEES COLLECTED

The Geology Section collects fees from the regulated community in some cases to fund or partially fund its regulatory programs. These fees are established by statute and implemented by KDHE through the appropriate program regulations.

UNDERGROUND INJECTION CONTROL PROGRAM

The Class III Salt Solution Mining companies are assessed annual fees in the amount of \$12,000 per facility and \$175 per unplugged salt solution mining well. This resulted in a total of \$72,675.00 being collected. These fees are directed to the Salt Solution Mining Fee Fund.

UNDERGROUND HYDROCARBON STORAGE PROGRAM

The storage companies are assessed annual fees in the amount of \$18,890 per facility and \$305 per unplugged storage well. A fee of \$700 for each new well permit application is also assessed. This resulted in a total of \$375,560 being collected. These fees are directed to the Subsurface Hydrocarbon Storage Fund.

WATER WELL PROGRAM

Annual fees of \$100 per water well contractor's license and \$25 per drilling rig are assessed. This results in a total of \$33,150 being collected from these sources. In addition, a fee of \$5 per WWC-5 water well record filed for each constructed and reconstructed well is charged, which generated \$22,120. A \$10 test application fee is also charged for each time a license test is taken by a new contractor. An incidental amount is collected from this. These fees are directed to the State General Fund.

GEOLOGY SECTION

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OUTREACH ACTIVITIES

An effective method of achieving protection of the public health, safety and the environment is to educate the industry and public. The Geology Section accomplishes this by increasing access to the Geology Section programs and providing information to the regulated community and the public.

Listed below are some of the outreach activities conducted by the Geology Section.

- ◆ Sponsored a fall seminar on water, energy and environmental topics, with approximately 128 participants.
- ◆ Maintained a booth providing information on Geology Section programs at the Kansas Groundwater Association (KGWA) Annual Exposition and Convention.
- ◆ Gave a presentation on the Water Well Program to the KGWA Annual Exposition and Convention.
- ◆ Gave a presentation on well construction requirements/Water Well Program at KGWA Spring and Fall Technical Seminars.

In addition, the Geology Section maintains an active membership in the following professional organizations:

- Kansas Ground Water Association
- Solution Mining Research Institute
- Groundwater Protection Council.
- National Ground Water Association

Geology Section staff served on the following workgroups and committees:

- Kansas Corporation Commission Oil and Gas Advisory Committee
- Kansas Ground Water Association Board
- EPA/States UIC Database Workgroup
- Kansas Corporation Commission Horizontal Drilling Environmental Subcommittee